CONTENTS, VOLUME 91

NUMBER 1 **JANUARY 1963**

Introduction to Picture of the Month Series — S. Fred Singer — 1
Picture of the Month — 2
The Development and Decay of the 100-mb. Summertime Anticyclone over Southern Asia — Ralph B. Mason and Calvin E. Anderson — 3–12
Recent Articles in Other Weather Bureau Periodicals — 12
Elementary Theory of Associations Between Atmospheric Motions and Distributions of Water Content — Edwin Kessler, III — 13–27
Publications by Weather Bureau Authors — 28
Weather Note
Photo Pireps — Tom Hill — 29–32
Correspondence
Comments on "Photo Pireps" — L. F. Hubert — 32
Description and Operation of the T-Sonde—A Low-Level Air Temperature Measuring Device — C. Ray Dickson — 33–36
Analysis of the U and V Fields in the Vicinity of the Poles — Arnold Appleton Barnes, Jr. — 37–40
The Weather and Circulation of October 1962—A Warm Month with a Mid-Month Circulation Reversal — Raymond A. Green — 41–46

NUMBER 2 **FEBRUARY 1963**

The January Warm Spell and Associated Large-Scale Circulation Changes — Robert T. Duquet — 47–60
An Incipient Hurricane Near the West African Coast — C. O. Erickson — 61–68
Weather Note
Sounding in the Developing Eye of Tropical Storm Alma — Cadesman Pope, Jr. — 69–71
Picture of the Month — 72
Analysis of Clear Air Turbulence Data for March 1962 — DeVer Colson — 73–82
On the Relationships of Range to Standard Deviation of Wind Fluctuations — Earl H. Markee, Jr. — 83–87
New Weather Bureau Publication — 88
Low-Level Convergence and Thunderstorms in Alaska — William G. Sullivan, Jr. — 89–92
The Weather and Circulation of November 1962 — Julian W. Posey — 93–98

NUMBER 3 **MARCH 1963**

General Circulation Experiments with the Primitive Equations
I. The Basic Experiment — J. Smagorinsky — 99–164
Picture of the Month — 165
New Weather Bureau Publication — 166
Correction — 166
The Weather and Circulation of December 1962—Record Cold in the South — L. P. Stark — 167–174

NUMBER 4 **APRIL 1963**

Some Tornadoes, Waterspouts, and Other Funnel Clouds of Hawaii — Saul Price and Richard I. Sasaki — 175–190
Weather Note
Funnel Clouds in Hawaii — Gerald A. Petersen — 191–192
The Association of Richardson's Criterion with High Level Turbulence — James D. Rustenbeck — 193–198
The Hurricane Season of 1962 — Gordon E. Dunn and Staff — 199–207
Picture of the Month — 208
The Weather and Circulation of January 1963—One of the Most Severe Months on Record in the United States and Europe — James F. O'Connor — 209–217
Correction — 218

NUMBER 5 **MAY 1963**

Numerical Tropospheric Prediction with a Divergent Barotropic Model — G. J. Haltiner, Harry E. Nicholson, and Winslow B. Oakes — 219–226
Some Limitations and Errors Inherent in the Use of the Dew Cell for Measurement of Atmospheric Dew Points — D. T. Acheson — 227–234
Some Features of the Circulation at the 10-mb. Surface, July 1958 through June 1959 — Frederick G. Finger, Ralph B. Mason, and Harold A. Corzine — 235–249
Picture of the Month — 250
500 kc./sec. Sferics Analysis of Severe Weather Events — Douglas A. Kohl and John E. Miller — 251–258
Relationship of Precipitation to Vorticity and Vertical Motion at Salt Lake City, Utah — Philip Williams, Jr. — 259–263
The Weather and Circulation of February 1963—A Warm Month in the West and Continued Cold in the East — Raymond A. Green — 264–270

NUMBER 6 **JUNE 1963**

Environmental and Thunderstorm Structures as Shown by National Severe Storms Project Observations in Spring 1960 and 1961 — Staff Members, NSSP — 271–292
Recent Articles in Other Weather Bureau Periodicals — 292
Precipitation Probability at Denver Related to Length of Period — A. G. Topil — 293–297
A Markov Chain Model for the Probability of Precipitation Occurrence in Intervals of Various Length — James E. Caskey, Jr. — 298–301
Publications by Weather Bureau Authors — 302
Weather Note
Comments on a Radar Hook Echo of the "Reverse 6" Type — L. Edwin Williamson — 303–305
Picture of the Month — 306
Correspondence
The Unusual Weather of January 1963 — H. E. Landsberg — 307–308
The Weather and Circulation of March 1963—A Marked Reversal from February — James F. Andrews — 309–316
Correction — 316
Climatic Atlas — 317

NUMBER 7 **JULY 1963**

Monthly Mean Values and Spatial Distribution of Meridional Transport of Sensible Heat — Donald A. Haines and Jay S. Winston — 319–328
Development of Tropical Cyclones in Relation to Circulation Patterns at the 200-millibar Level — José A. Colón and William R. Nightingale — 329–336
Mean Five-Day Pressure Pattern of the Great Atlantic Coast Storm, March 1962 — Arthur I. Cooperman and Hans E. Rosendal — 337–344
Picture of the Month — 345
New Weather Bureau Publication — 346
The Weather and Circulation of April 1963—Continued Warm East of the Continental Divide and Cool to the West — Julian W. Posey — 347–352
Publications by Weather Bureau Authors — 353–354

NUMBER 8 **AUGUST 1963**

Synoptic Case Study of Tropical Cyclogenesis Utilizing TIROS Data — Neil L. Frank — 355–366
TIROS V Views Final Stages in the Life of Typhoon Sarah, August 1962 — Robert W. Fett — 367–373
Picture of the Month — 374
Preliminary Computations on the Maintenance and Prediction of Seasonal Temperatures in the Troposphere — Julian Adem — 375–386
Some Observed Low-Level Air Trajectories over Los Angeles, California — George C. Holzworth, Erwin K. Kauper, and Theodore B. Smith — 387–392
Large-Scale Precipitation Volumes, Gradients, and Distribution — Jerrold A. LaRue and Russell J. Younkin — 393–401
New Weather Bureau Publications — 402
The Weather and Circulation of May 1963—A Month with Retrogression over North America — L. P. Stark — 403–410
Correction — 410

NUMBER 9 **SEPTEMBER 1963**

Effects of Non-Photochemical Processes on the Meridional Distribution and Total Amount of Ozone in the Atmosphere — Cuddapah Prabhakara — 411–431
Picture of the Month — 432
An Application of TIROS Cloud Observations in Sparse Data Regions — Forrest R. Miller — 433–451
Notice to Readers — 452
On the Problem of the Diagnostic Calculation of Vertical and Radial Motions in a Wet Vortex — Stanley L. Rosenthal — 453–464
Weather Note
An Occurrence of Lake Snow, One of the Direct Effects of Lake Michigan on the Climate of the Chicago Area — George C. Williams — 465–463
The Weather and Circulation of June 1963—Interplay between Blocking and Drought in the United States — R. R. Dickson — 468–477
New Weather Bureau Publications — 473
Publications by Weather Bureau Authors — 474

NUMBERS 10–12 **OCTOBER–DECEMBER 1963**

CONTRIBUTIONS IN MEMORY OF HARRY WEXLER
Foreword — F. W. Reichelderfer — 475–476
Acknowledgments — J. E. Caskey, Jr. — 476
Bilbliography of the Publications of Harry Wexler — Malcolm Rigby and Pauline A. Keehn — 477–481
Interactions of Circulation and Weather Between Hemispheres — Jerome Namias — 482–486
The Mass and Heat Budget of the Antarctic Atmosphere — Morton J. Rubin and William S. Weyant — 487–493
Tropospheric Heat Sources and Sinks at Washington, D.C., Summer 1961, Related to the Physical Features and Energy Budget of the Circulation — Philip F. Clapp and Francis J. Winninghoff — 494–504
A Spectral Study of the Warming Epoch of January–February 1958 — Sidney Teweles — 505–519
A Possible Effect of Atmospheric Circulation in the Daily Variation of the Earth's Magnetic Field — Oliver Reynolds Wulf — 520–526

Specification of Precipitation from the 700-millibar Circulation ..... William H. Klein 527–536
Harmonic Analysis of the Biennial Zonal-Wind and Temperature Regimes ..... J. K. Angell and J. Korshover 537–548
Surface Signs of the Biennial Atmospheric Pulse ..... H. E. Landsberg, J. M. Mitchell, Jr., H. L. Crutcher, and F. T. Quinlan 549–556
Semidiurnal Tidal Motions in the Friction Layer ..... Miles F. Harris 557–565
The Atmospheric Tides at Wake Island ..... William L. Kiser, Thomas H. Carpenter, and Glenn W. Brier 566–572
Three Southerly Low-Level Jet Systems Delineated by the Weather Bureau Special Pibal Network of 1961 ..... Walter H. Hoecker, Jr. 573–582
A Preliminary Study of Air Trajectories in the Los Angeles Basin as Derived from Tetroon Flights ..... D. H. Pack and J. K. Angell 583–604
Summary of High Level Turbulence over United States ..... DeVer Colson 605–609
The Problem of the Martian Yellow Clouds ..... F. A. Gifford, Jr. 610–612
The Variable Appearance of the Earth from Satellites ..... Sigmund Fritz 613–620
Cloud Patterns. Part 1: Some Aspects of the Organization of Cloud Patterns, Part 2: A Mechanism That Organizes Cloud Patterns ..... V. J. Oliver, M. B. Oliver, and John C. Freeman 621–632
Picture of the Month ..... L. F. Hubert 633–634
Measured Effective Long-Wave Emissivity of Clouds ..... P. M. Kuhn 635–640
Temporal and Spatial Variations in the Planetary-Scale Outgoing Long-Wave Radiation as Derived from TIROS II Measurements ..... Jay S. Winston and P. Krishna Rao 641–657
Average Annual Solar Radiation Per Day Over Northern North America ..... Torrence H. MacDonald 658
A Discussion of Indirect Sounding Methods, With Special Reference to the Deduction of Vertical Ozone Distribution from Light Scattering Measurements ..... S. Twomey and H. B. Howell 659–664
Mauna Loa Observatory: The First Five Years ..... Saul Price and Jack C. Pales 665–680
Evidence of Geographical Differences in Ice Nuclei Concentrations ..... Dwight B. Kline 681–686
Liquid Water in Squall Lines and Hurricanes at Air Temperatures Lower Than −40° C ..... R. H. Simpson 687–693
An Analysis of Hurricane Cleo (1958) Based on Data from Research Reconnaissance Aircraft ..... N.E. LaSeur and H. F. Hawkins 694–709
A Regression Model for Storm Surge Prediction ..... D. Lee Harris and Aldo Angelo 710–726
A Note on Vertical Motions in the Region of the Antarctic Circumpolar Current ..... Feodor Ostapoff 727–729
Tornado Probabilities ..... H. C. S. Thom 730–736
The Weather and Circulation of July, August, and September 1963—Dry and Cool in the East ..... James F. O'Connor 737–748
Contents, Volume 91 749–751
Correction Notices 751
Index, Volume 91 752–756

CORRECTION NOTICES

vol. 91.

Jan. 1963, p. 38: Fourth line should read "$U^2+V^2=C^2$ does *not* hold at the poles . . ."

Feb. 1963, p. 69: In paragraph 2 delete the words "rawin target."

p. 70: In caption to figure 2, line 3, delete "radar".
In column 1, line 2 change "radar" to read "GMD–1B rawinsonde."

May 1963: The pagination for the May issue is incorrect. Each page number should be increased by 44. The correct pages appear in the table of contents just preceding, and in the index following.

June 1963, p. 287: Figure 22 should be credited as follows: "(After Ward [34].)"

INDEX, VOLUME 91

A

ACHESON, D. T.:
Some limitations and errors inherent in the use of the dew cell for measurement of atmospheric dew points. 227–234.
ADEM, JULIAN:
Preliminary computations on the maintenance and prediction of seasonal temperatures in the troposphere. 375–386.
Air flow, low-level, Los Angeles. 387, 583.
Alaska, thunderstorms in. 89.
Analysis, satellite pictures applied to deduce 500-mb. flow patterns. 433.
ANDERSON, CALVIN E.:
and Ralph B. Mason. The development and decay of the 100-mb. summertime anticyclone over southern Asia. 3–12.
ANDREWS, JAMES F.:
The weather and circulation of March 1963—A marked reversal from February. 309–316.
ANGELL, J. K.:
and J. Korshover. Harmonic analysis of the biennial zonal-wind and temperature regimes. 537–548.
and D. H. Pack. A preliminary study of air trajectories in the Los Angeles basin as derived from tetroon flights. 583–604.
ANGELO, ALDO:
and D. Lee Harris. A regression model for storm surge prediction. 710–726.
Antarctica, mass and heat budget, atmospheric. 487.
Antarctic Circumpolar Current, vertical motions in region of. 727
Anticyclone, summer 100-mb., over Asia. 3.
Atmospheric circulation, effect on magnetic field. 520.
Atmospheric electricity, measurements at Mauna Loa. 665.
Atmospheric motions, and water content distribution, theoretical. 13.

B

BARNES, ARNOLD APPLETON, JR.:
Analysis of the U and V fields in the vicinity of the poles. 37–40.
Bibliography, publications by H. Wexler. 477.
Biennial oscillation:
surface temperature indications. 549.
zonal-wind and temperature, function of latitude and height. 537.
BRIER, GLENN W.:
and William L. Kiser and Thomas H. Carpenter. The atmospheric tides at Wake Island. 566–572.

C

CASKEY, JAMES E., JR.:
A Markov chain model for the probability of precipitation occurrence in intervals of various length. 298–301.
CARPENTER, THOMAS H.:
and William L. Kiser and Glenn W. Brier. The atmospheric tides at Wake Island. 566–572.
Circulation, low-level, measured by tetroons. 387, 583
CLAPP, PHILIP F.:
and Francis J. Winninghoff. Tropospheric heat sources and sinks at Washington, D.C., summer 1961, related to the physical features and energy budget of the circulation. 494–504.
Clear air turbulence:
and Richardson number. 193.
frequency distributions and probability. 73.
over U.S. 605.
Clouds:
convective, banded organization. 621.
convective, hypothesis of mechanism which organizes into bands. 630.
long-wave emissivity of, measured. 635.
pattern over sea with islands. 633.
satellite pictures of. 2, 72, 165, 208, 250, 306, 345, 374, 432, 613, 633.
Coastal storm, Atlantic, Mar. 1962, and 5-day pressure. 337.
COLÓN, JOSÉ A.:
and William R. Nightingale. Development of tropical cyclones in relation to circulation patterns at the 200-millibar level. 329–336.
COLSON, DEVER:
Analysis of clear air turbulence data for March 1962. 73–82.
Summary of high level turbulence over United States. 605–609.
COOPERMAN, ARTHUR I.:
and Hans E. Rosendal. Mean five-day pressure pattern of the great Atlantic coast storm, March 1962. 337–344.
Correction notices. 166, 316, 410.
CORZINE, HAROLD A.:
and Frederick G. Finger and Ralph B. Mason. Some features of the circulation at the 10-mb. surface July 1958 through June 1959. 235–249.
CRUTCHER, H. L.:
and H. E. Landsberg, J. M. Mitchell, Jr., F. T. Quinlan. Surface signs of the biennial atmospheric pulse. 549–556.

D

Dew cell, limitations of. 227.
Dew point measurement by dew cell. 227.
Diagnostic model, to calculate vertical and radial motions in wet vortex. 453.
DICKSON, C. RAY:
Description and operation of the T-sonde—A low-level air temperature measuring device. 33–36.
DICKSON, ROBERT R.:
The weather and circulation of June 1963—Interplay between blocking and drought in the United States. 468–473.
DUNN, GORDON E.:
and Staff. The hurricane season of 1962. 199–207.
DUQUET, ROBERT T.:
The January warm spell and associated large-scale circulation changes. 47–60.

E

Emissivity, long wave, of clouds measured. 635.
ERICKSON, C. O.:
An incipient hurricane near the West African Coast. 61–68.

F

FETT, ROBERT W.:
TIROS V views final stages in the life of typhoon Sarah, August 1962. 367–373.
FINGER, FREDERICK G.:
and Ralph B. Mason and Harold A. Corzine. Some features of the circulation at the 10-mb. surface July 1958 through June 1959. 235–249.
Foreword to contributions in memory of Harry Wexler. 475.
FRANK, NEIL L.:
Synoptic case study of tropical cyclogenesis utilizing TIROS data. 355–366.
FREEMAN, JOHN C.:
Cloud patterns. Part 2: A mechanism that organizes cloud patterns. 630–632.
FRITZ, SIGMUND:
The variable appearance of the earth from satellites. 613–620.
Funnel clouds, in Hawaii. 191.

G

General Circulation:
Antarctica. 727.
atmospheric heat sources and sinks and the energy budget. 494.
interhemispheric relations and weather. 482.
meridional heat transport in N. Hemisphere. 319.
numerical model with primitive equations. 99.
GIFFORD, F. A., JR.:
The problem of the Martian yellow clouds. 610–612.
GREEN, RAYMOND A.:
The weather and circulation of February 1963—A warm month in the West and continued cool in the East. 264–270.
The weather and circulation of October 1962—A warm month with a mid-month circulation reversal. 41–46.

H

HAINES, DONALD A.:
and Jay S. Winston. Monthly mean values and spatial distribution of meridional transport of sensible heat. 319–328.
HALTINER, G. J.:
and Harry E. Nicholson and Winslow B. Oakes. Numerical tropospheric prediction with a divergent barotropic model. 219–226.
HARRIS, D. LEE:
and Aldo Angelo. A regression model for storm surge prediction. 710–726.
HARRIS, MILES F.:
Semidiurnal tidal motions in the friction layer. 557–565.
Hawaii:
funnel clouds. 191
Mauna Loa Observatory. 665.
tornadoes and waterspouts. 175.
HAWKINS, H. F.:
and N. E. LaSeur, An analysis of hurricane Cleo (1958) based on data from research reconnaissance aircraft. 694–709.
Heat:
budget of Antarctic atmosphere. 487.
meridional transport in N. Hemisphere. 319.
sources and sinks, atmospheric, and energy budget. 494.
HILL, TOM:
Photo pireps. 29–32.
HOECKER, WALTER H., JR.:
Three southerly low-level jet systems delineated by the Weather Bureau special pibal network of 1961. 573–582.
HOLZWORTH, GEORGE C.:
and Erwin K. Kauper and Theodore B. Smith. Some observed low-level air trajectories over Los Angeles, California. 387–392.
HOWELL, H. B.:
and S. Twomey. A discussion of indirect sounding methods, with special reference to the deduction of vertical ozone distribution from light scattering measurements. 659–664.
HUBERT, L. F.:
Comments on "Photo pireps." 32
Picture of the month. 633–634.
Hurricanes:
Cleo 1958, structure analyzed. 694.
eastern Pacific, July–Sept., 1963. 737.
incipient, near W. Africa, analyzed. 61.
July, Aug., Sept. 1963. 737
numerical model of symmetrical vortices. 453
season of 1962. 199.
sounding in eye. 69.

I

Ice nuclei:
counts at Mauna Loa. 665.
geographical difference in concentration. 681.
Indirect soundings, limitations. 659.
Instruments:
T-sonde, low-level air temperature. 33.
dew cell. 227.

J

"January thaw," and circulation changes. 47.
Jet, southerly low-level, case study. 573.

K

KAUPER, ERWIN K.:
and George O. Holzworth and Theodore B. Smith. Some observed low-level air trajectories over Los Angeles, California. 387–392.
KEEHN, PAULINE A.:
and Malcolm Rigby. Bibliography of the publications of Harry Wexler. 477–481.
KESSLER, EDWIN, III:
Elementary theory of associations between atmospheric motions and distributions of water content. 13–27.
KISER, WILLIAM L.:
and Thomas H. Carpenter and Glenn W. Brier. The atmospheric tides at Wake Island. 566–572.
KLEIN, WILLIAM H.:
Specification of precipitation from the 700-millibar circulation. 527–536.
KLINE, DWIGHT B.:
Evidence of geographical differences in ice nuclei concentrations. 681–686.
KOHL, DOUGLAS A.:
and John E. Miller. 500 kc./sec. sferics analysis of severe weather events. 251–258.
KORSHOVER, J.:
and J. K. Angell. Harmonic analysis of the biennial zonal-wind and temperature regimes. 537–548.
KUHN, P. M.:
Measured effective long-wave emissivity of clouds. 635–640.

L

Lake effect, on Chicago snow. 456.
Lake Erie storm surges, regression model. 710.
LANDSBERG, H. E.:
The unusual weather of January 1963. 307–308.
and J. M. Mitchell, Jr., H. L. Crutcher, F. T. Quinlan. Surface signs of the biennial atmospheric pulse. 549–556.
LARUE, JERROLD A.:
and Russell J. Younkin. Large-scale precipitation volumes, gradients, and distribution. 393–401.
LASEUR, N. E.:
and H. F. Hawkins. An analysis of hurricane Cleo (1958)

based on data from research reconnaissance aircraft. 694–709.
Liquid water content of air at temperatures lower than −40° C. 687.
Los Angeles, low-level air flow. 387, 583.

M

MACDONALD, TORRENCE H.:
Average annual solar radiation per day over northern North America. 658.
Magnetic field, earth's, effect of atmospheric circulation on daily variation of. 520.
Map analysis, *U* and *V* fields near poles. 37.
MARKEE, EARL H., JR.:
On the relationships of range to standard deviation of wind fluctuations. 83–87.
Mars, movement of yellow clouds on. 610.
MASON, RALPH B.:
and Calvin E. Anderson. The development and decay of the 100-mb. summertime anticyclone over southern Asia. 3–12.
and Frederick G. Finger and Harold A. Corzine. Some features of the circulation at the 10-mb. surface July 1958 through June 1959. 235–249.
Mauna Loa Observatory, first five years. 665.
Mesometeorology:
NSSP observations, spring 1960 and 1961. 271.
southerly low-level jet, case study. 573.
MILLER, FORREST R.:
An application of TIROS cloud observations in sparse data regions. 433–451.
MILLER, JOHN E.:
and Douglas A. Kohl. 500 kc./sec. sferics analysis of severe weather events. 251–258.
MITCHELL, J. M., JR.:
and H. E. Landsberg, H. L. Crutcher, F. T. Quinlan. Surface signs of the biennial atmospheric pulse. 549–556.

N

NAMIAS, JEROME:
Interactions of circulation and weather between hemispheres. 482–486.
National Severe Storms Project, observations spring 1960 and 1961. 271.
Nephanalysis, TIROS, used in 500-mb. map analysis. 433.
NICHOLSON, HARRY E.:
and G. J. Haltiner and Winslow B. Oakes. Numerical tropospheric prediction with a divergent barotropic model. 219–226.
NIGHTINGALE, WILLIAM R.:
and José A. Colón. Development of tropical cyclones in relation to circulation patterns at the 200-millibar level. 329–336.
Numerical prediction:
diagnostic calculation of vertical and radial motions in wet vortex. 453.
divergent barotropic model. 219.

O

OAKES, WINSLOW B.:
and G. J. Haltiner and Harry E. Nicholson. Numerical tropospheric prediction with a divergent barotropic model. 219–226.
O'CONNOR, JAMES F.:
The weather and circulation of January 1963—One of the most severe months on record in the United States and Europe. 209–217.
The weather and circulation of July, August, and September 1963—Dry and cool in the East. 737–748.
OLIVER, M. B.:
and V. J. Oliver. Cloud patterns. Part 1: Some aspects of the organization of cloud patterns. 621–629.
OLIVER, V. J.
and M. B. Oliver. Cloud patterns: Part 1: Some aspects of the organization of cloud patterns. 621–629.
OSTAPOFF, FEODOR:
A note on vertical motions in the region of the Antarctic Circumpolar Current. 727–729.
Ozone:
effect of non-photochemical processes on distribution and total amount. 411.
indirect sounding of vertical distribution. 659.
measurements at Mauna Loa. 665.

P

PACK, D. H.:
and J. K. Angell. A preliminary study of air trajectories in the Los Angeles basin as derived from tetroon flights. 583–604.
PALES, JACK C.:
and Saul Price. Mauna Loa Observatory: the first five years. 665–680.
PETERSEN, GERALD A.:
Funnel clouds in Hawaii. 191–192.
Photo pilot reports. 29.
Picture of the month (TIROS),
actinoform cloud pattern. 2.
cloudiness over Great Lakes. 306.
cumuli over England. 165.
cyclonic vortex, N. Atlantic. 374.
Gulf of St. Lawrence. 432.
Ocean influence 633.
parallel low-latitude bands. 250.
snow cover. 72.
streak cloud. 208.
vortices in Indian Ocean. 345.
Pilot reports, photo. 29.
Planetary atmospheres, Mars' yellow clouds. 610.
POPE, CADESMAN, JR.:
Sounding in the developing eye of tropical storm Alma. 69–71.
POSEY, JULIAN W.:
The weather and circulation of April 1963—Continued warm east of the Continental Divide and cool to the west. 347–352.
The weather and circulation of November 1962. 93–98.
PRABHAKARA, CUDDAPAH:
Effects of non-photochemical processes on the meridional distribution and total amount of ozone in the atmosphere. 411–431.
Precipitation:
and 700-mb. height departure from normal. 527.
probability at Denver. 293.
probability, Markov chain model. 298.
relation to vorticity and vertical motion, Salt Lake City. 259.
theory of relation to motion field. 13.
volumes, gradients, and distribution. 393.
Pressure, 5-day mean for Atlantic coast storm Mar. 1962. 337.
PRICE, SAUL:
and Jack C. Pales. Mauna Loa Observatory: the first five years. 665–680.
and Richard I. Sasaki. Some tornadoes, waterspouts, and other funnel clouds of Hawaii. 175–190.
Probability of precipitation:
and length of period, Denver. 293.
Markov chain model. 298.
Publications
by Weather Bureau authors. 28, 302, 353, 474.
new Weather Bureau. 88, 166, 317, 346, 402, 473.

Q

QUINLAN, F. T.:
and H. E. Landsberg, J. M. Mitchell, Jr., H. L. Crutcher. Surface signs of the biennial atmospheric pulse. 549–556.

R

Radar meteorology:
hook echo. Chicago, July 1962. 303.
NSSP observations, spring 1960 and 1961. 271.
Radiation, solar:
average annual, N. America. 658.
measurements at Mauna Loa. 665.
Radiation, terrestrial; temporal and spatial variations, from TIROS II observations. 641.
RAO, P. KRISHNA:
and Jay S. Winston. Temporal and spatial variations in the planetary-scale outgoing long-wave radiation as derived from TIROS II measurements. 641–657.
Recent articles in other Weather Bureau periodicals. 12, 292.
REICHELDERFER, F. W.:
Foreword [to contributions in memory of Harry Wexler.] 475–476.
Relative humidity, measurement by dew cell. 227.
Richardson number, and high-level turbulence. 193.
RIGBY, MALCOLM:
and Pauline A. Keehn. Bibliography of the publications of Harry Wexler. 477–481.
ROSENDAL, HANS E.:
and Arthur I. Cooperman. Mean five-day pressure pattern of the great Atlantic coast storm, March 1962. 337–344
ROSENTHAL, STANLEY L.:
On the problem of the diagnostic calculation of vertical and radial motions in a wet vortex. 453–464.
RUBIN, MORTON J.:
and William S. Weyant. The mass and heat budget of the Antarctic atmosphere. 487–493.
RUSTENBECK, JAMES D.:
The association of Richardson's criterion with high-level turbulence. 193–198.

S

SASAKI, RICHARD I.:
and Saul Price. Some tornadoes, waterspouts, and other funnel clouds of Hawaii. 175-190.
Satellite meteorology:
air-sea interaction and clouds. 633.
effects of clouds on radiation observations by satellite. 635.
picture of the month. 2, 72, 165, 208, 250, 306, 345, 374, 432, 633.
pictures applied to deduce 500-mb. flow patterns. 433
pictures showing earth's appearance and variations. 613
TIROS II radiation measurements, patterns. 641.
tropical cyclogenesis study. 355.
typhoons, western Pacific Aug. 1962. 367.
Semidiurnal tidal motions in friction layer. 557.
Severe storms, NSSP observations, spring 1960 and 1961. 271.
Severe weather, and 500 kc./sec. sferics activity. 251
Sferics, 500 kc./sec., and severe weather. 251.
SIMPSON, R. H.:
Liquid water in squall lines and hurricanes at air temperatures lower than −40° C. 687–693.
SINGER, S. FRED:
Introduction to the Picture of the Month. 1.
SMAGORINSKY, J.:
General circulation experiments with the primitive equations. I. the basic experiment. 99–165.
SMITH, THEODORE B.:
and George C. Holzworth and Erwin K. Kauper. Some observed low-level air trajectories over Los Angeles, California. 387–392.
Snow, lake-produced in Chicago. 465.
Southwest monsoon, and high-level summer anticyclone, Asia. 3.
STAFF, NSSP:
Environmental and thunderstorm structures as shown by National Severe Storms Project observations in spring 1960 and 1961. 271–292.
Standard deviation of wind fluctuations, related to range. 83.
STARK, L. P.:
The weather and circulation of May 1963—A month with retrogression over North America. 403–410.
The weather and circulation of December 1962—Record cold in the South. 167–174.
Storm surge prediction, regression model. 710.
Storm surges, Atlantic storm Mar. 1962, and 5-day pressure. 337.
Stratosphere:
circulation 1958–59. 235.
100-mb. anticyclone, summer, Asia. 3.
spectral analysis of warming in. 505.
SULLIVAN, WILLIAM G., JR.:
Low-level convergence and thunderstorms in Alaska. 89–92.

T

Temperature
anomaly, global, Jan. 1963. 307.
biennial oscillation. 537.
biennial oscillation, surface. 549.
January warm spell and circulation changes. 47.
low in Jan. 1963. 209.
seasonal tropospheric, computed and predicted. 375.
TEWELES, SIDNEY:
A spectral study of the warming epoch of January–February 1958. 505–519.
THOM, H. C. S.:
Tornado probabilities. 730–736.
Thunderstorms:
formation over Rockies. 621.
in Alaska. 89.
NSSP observations, spring 1960 and 1961. 271.
Tide, atmospheric
semidiurnal, in friction layer. 557.
Wake Island. 566.
TOPIL, A. G.:
Precipitation probability at Denver related to length of period. 293–297.
Tornadoes:
annual frequency U.S. 730.
Chicago, July 1962. 303.
frequency distributions of path length, width, Iowa. 730.
in Hawaii. 175
NSSP observations, spring 1960 and 1961. 271.
point probabilities, Iowa. 730.
Transport processes
heat, meridional, N. Hemisphere. 319.
ozone. 411.
Tropical cyclones (see also hurricanes):
development related to 200-mb. circulation. 329.
genesis studied by TIROS data. 355.
numerical vertical motion calculations in a wet vortex. 453.
Troposphere, seasonal temperature computed and predicted. 375.
T-sonde. 33.
Turbulence, high level, clear air, over U.S. 605.

TWOMEY S.:
and H. B. Howell. A discussion of indirect sounding methods, with special reference to the deduction of vertical ozone distribution from light scattering measurements. 659–664.
Typhoons, Aug. 1962, TIROS view. 367.
July, Aug., Sept. 1963. 737.

V

Vertical motions:
and precipitation, Salt Lake City. 259.
calculations, numerical, in wet vortex. 453.
Vorticity, and precipitation, Salt Lake City. 259.

W

Wake Island, atmospheric tide at. 566.
Warming, stratospheric, spectral analysis of. 505.
Water content, and atmospheric motion field. 13.
Waterspouts, in Hawaii. 175.
Weather and general circulation, interhemispheric relations. 482.
Weather Notes
lake snow, Chicago. 468.
photo pireps. 29.
radar hook echo. 303.
sounding in eye of "Alma." 69.
Weather, U.S., and N.H. circulation:
Oct. 1962. 41.
Nov. 1962. 93.
Dec. 1962. 167.
Jan. 1963. 209.
Feb. 1963. 264.
Mar. 1963. 309.
April 1963. 347.
May 1963. 403.
June 1963. 468.
July, Aug., Sept. 1963. 737.
Wexler, H., bibliography of publications by. 477.
WEYANT, WILLIAM S.:
and Morton J. Rubin. The mass and heat budget of the Antarctic atmosphere. 487–493.
WILLIAMS, GEORGE C.:
An occurrence of lake snow, one of the direct effects of Lake Michigan on the climate of the Chicago area. 465–467.
WILLIAMS, PHILIP, JR.:
Relationship of precipitation to vorticity and vertical motion at Salt Lake City, Utah. 259–263.
WILLIAMSON, L. EDWIN:
Comments on a radar hook echo of the "reverse 6" type. 303–305.
Winds:
speed and direction range related to standard deviation. 83.
U and *V* analysis near poles. 37.
zonal, biennial oscillation. 537.
WINNINGHOFF, FRANCIS J.:
and Philip F. Clapp. Tropospheric heat sources and sinks at Washington, D.C., summer 1961, related to the physical features and energy budget of the circulation. 494–504.
WINSTON, JAY S.:
and Donald A. Haines. Monthly mean values and spatial distribution of meridional transport of sensible heat. 319–328.
and P. Krishna Rao. Temporal and spatial variations in the planetary-scale outgoing long-wave radiation as derived from TIROS II measurements. 641–657.
WULF, OLIVER REYNOLDS:
A possible effect of the atmospheric circulation in the daily variation of the earth's magnetic field. 520–526.

Y

YOUNKIN, RUSSELL J.:
and Jerrold A. LaRue. Large-scale precipitation volumes, gradients, and distribution. 393–401.

U.S. GOVERNMENT PRINTING OFFICE: 1963